



SEQUENCE LISTING

<110> Chen, Jingcai  
Kuei, Chester  
Liu, Changlu  
Lovenberg, Timothy W.  
Sillard, Rannar  
Sutton, Steven W.

<120> RELAXIN3-GPCR135 COMPLEXES AND THEIR PRODUCTION AND USE

<130> PRD2045NP-US

<140> US 10/786,478

<141> 2004-02-25

<150> US 60/451,702

<151> 2003-03-04

<160> 28

<170> PatentIn version 3.3

<210> 1

<211> 40

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 1

acagctcgag gccaccatgc agatggccga tgcagccacg

40

<210> 2

<211> 39

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 2

acatcatcta gatcagtagg cagagctgct gggcagcag

39

<210> 3

<211> 45

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 3

acgatactcg aggccaccat gcaggtggct tctgcaaccc ccgcg

45

<210> 4

<211> 41

<212> DNA

<213> Artificial

<220>  
 <223> Primer  
 <400> 4  
 actagatcta gatcagtagg cagagctact agggagcagg t 41

<210> 5  
 <211> 47  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer  
 <400> 5  
 acgatactcg aggccaccat gcccaaagcg cacctgagca tgcaagt 47

<210> 6  
 <211> 41  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer  
 <400> 6  
 acgatatcta gatcagtagg cagagctgct agggagaagg t 41

<210> 7  
 <211> 45  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer  
 <400> 7  
 acgatactcg aggccaccat gcaagtggct tctgcaacca ccgca 45

<210> 8  
 <211> 1410  
 <212> DNA  
 <213> Homo sapiens

<400> 8  
 atgcagatgg ccgatgcagc cacgatagcc accatgaata aggcagcagg cggggacaag 60  
 ctagcagaac tcttcagtct ggtcccggac cttctggagg cggccaacac gagtggtaac 120  
 gcgtcgtgc agcttccgga cttgtggtgg gagctggggc tggagttgcc ggacggcgcg 180  
 ccgccaggac atcccccgga cagcggcgga gcagagagcg cggacacaga ggccccgggtg 240  
 cggatttcta tcagcgtggt gtactgggtg gtgtgcgccc tggggttggc gggcaacctg 300  
 ctggttctct acctgatgaa gagcatgcag ggctggcgca agtcctctat caacctcttc 360  
 gtcaccaacc tggcgtgac ggactttcag tttgtgctca ccctgccctt ctgggcggtg 420  
 gagaacgctc ttgacttcaa atggcccttc ggcaaggcca tgtgtaagat cgtgtccatg 480

gtgacgtcca tgaacatgta cgccagcgtg ttcttcctca ctgccatgag tgtgacgcgc	540
taccattcgg tggcctcggc tctgaagagc caccggaccc gaggacacgg ccggggcgac	600
tgctgcggcc ggagcctggg ggacagctgc tgcttctcgg ccaaggcgct gtgtgtgtgg	660
atctgggctt tggccgcgct ggcctcgctg cccagtgccca ttttctccac cacgggtcaag	720
gtgatgggcg aggagctgtg cctggtgcgt ttcccggaca agttgctggg ccgcgacagg	780
cagttctggc tgggcctcta ccactcgcag aagggtgctgc tgggcttcgt gctgccgctg	840
ggcatcatta tcttgctgta cctgctgctg gtgcgcttca tcgccgaccg ccgcgcggcg	900
gggaccaaag gaggggcccgc ggtagccgga ggacgcccga ccggagccag cgcccggaga	960
ctgtcgaagg tcaccaaata agtgaccata gttgtcctgt ccttcttcct gtgttggtg	1020
cccaaccagg cgctcaccac ctggagcatt ctcattcaagt tcaacgcggg gcccttcagc	1080
caggagtatt tcctgtgcca ggtatacgcg ttccctgtga gcgtgtgcct agcgactcc	1140
aacagctgcc tcaaccccgt cctctactgc ctctgctgcc gcgagttccg caaggcgctc	1200
aagagcctgc tgtggcgcat cgcgtctcct tcgatcacca gcatgcgccc cttcaccgcc	1260
actaccaagc cggagcacga ggatcagggg ctgcaggccc cggcgccgcc ccacgcggcc	1320
gcggagccgg acctgtctta ctaccacatt ggcgtcgtgg tctacagcgg ggggcgctac	1380
gacctgctgc ccagcagctc tgcctactga	1410

<210> 9  
 <211> 1419  
 <212> DNA  
 <213> Mouse

<400> 9	
atgcagggtgg cttctgcaac ccccgcggcc accgtgagga aagcagctgc ggggtgatgag	60
ctctcagaat tcttcgctct gacccagac ttgctggaag tggccaacgc cagcggcaat	120
gcgtcgtgc agcttcagga tctgtggtgg gagctggggc tagagttgcc agacggtgcg	180
gcgcctgggc atcctccggg tggcggcggg gcagagagca cagacactga ggccagggtg	240
cggatcctca tcagcgcggg ttactgggtg gtttgtgccc tgggactggc cggcaacctg	300
ctggttctct acctgatgaa gagcaagcaa ggctggcgca aatcctccat caacctcttt	360
gtcactaacc tggcactgac tgactttcag ttcgtgctca ctctgccctt ttgggctgtg	420
gagaacgcac tagacttcaa gtggcccttc ggcaaggcca tgtgtaagat cgtgtccatg	480
gtgacatcca tgaacatgta cgccagcgtc ttcttcctca ctgctatgag cgtggcgcg	540
taccactcgg tggcctcggc tctcaagagc catcggaccc gagggcggtg ccgtggcgac	600
tgctgcggcc agagcttgag ggagagctgc tgtttttcag ccaagggtgct gtgtgggttg	660
atctgggctt cggctgcgct ggcctcgctg cccaatgccca ttttttccac caccatcagg	720

gtgttgggtg	aggagctctg	cctcatgcac	tttccagaca	agctactggg	ctgggacagg	780
cagttctggc	tgggtttgta	ccacctgcag	aagggtgctg	tgggcttcct	gctgccgctg	840
agcatcatca	gtctgtgtta	cctgttgctt	gtgcgcttca	tctccgaccg	tcgcgtagtt	900
gggacaacag	atgcagtagg	agcagcagca	gcgcctgggg	gaggcctgag	tacagccagc	960
gctaggagac	gctccaaggt	caccaagtcg	gtgaccatcg	tcgtcctctc	cttcttcctg	1020
tgttggctgc	ccaaccaggc	gcttaccacc	tggagcatcc	tcatcaagtt	caacgccgtg	1080
cccttcagcc	aggagtactt	tcagtgccaa	gtgtacgcgt	tcccagtcag	cgtgtgcctg	1140
gcgcactcca	acagctgcct	caacccgatc	ctctactgct	tagtgcgccg	cgagttccgc	1200
aaggcgctca	agaacctgct	gtggcgata	gcctcgctt	cgctcaccaa	catgcgcctt	1260
ttcaccgcca	ccaccaagcc	agaacctgaa	gatcacgggc	tgcaggccct	ggcgccgctt	1320
aatgctgctg	ccgaacctga	cctgatctac	tatccacccg	gtgtggtggt	ctacagcggg	1380
ggtcgctacg	acctgctccc	tagtagctct	gcctactga			1419

<210> 10  
 <211> 1431  
 <212> DNA  
 <213> Rat

<400> 10						
atgccc aaag	cgcacctgag	catgcaagtg	gcttctgcaa	ccaccgcagc	ccccatgagt	60
aaggcagctg	cgggtgatga	gctctccgga	ttcttcggcc	tgatcccaga	cttgctggag	120
gttgccaaca	ggagcagcaa	tgcgtcgctg	cagcttcagg	acttggtggtg	ggagctgggg	180
ctggagttgc	ccgacgggtg	ggcgccctgg	catcccccg	gcagcgggtg	ggcagagagc	240
gcggacacag	aggccagggt	acggatcctc	atcagcgccg	tttactgggt	ggtttgtgcc	300
ctgggactgg	ctggcaacct	gctggttctc	tacctgatga	agagcaaaca	gggctggcgc	360
aaatcctcca	ttaacctctt	tgtcactaac	ctggcgctga	ctgactttca	gtttgtgctc	420
actctgccct	tctgggcggt	ggagaacgca	ctagatttca	agtggccctt	tggcaaggcc	480
atgtgtaaga	tcgtatctat	ggtgacatcc	atgaacatgt	atgccagcgt	cttctttctc	540
actgctatga	gtgtggcgcg	ctaccactcg	gtggcctcag	ctctcaagag	ccatcggacc	600
cgcgggcatg	gccgtggcga	ctgctgcggc	cagagcttgg	gggagagctg	ctgtttctca	660
gccaaaggtc	tgtgtggatt	gatctgggct	tctgccgcga	tagcttcgct	gccc aatgtc	720
atTTTTTcta	ccaccatcaa	tgtgttgggc	gaggagctgt	gcctcatgca	ctttccggac	780
aagctcctgg	gttgggaccg	gcagttctgg	ctgggtttgt	accacctgca	gaagggtgctg	840
ctgggcttcc	tgctgccgct	gagcatcatc	agtttgtgtt	acctgttgct	cgtgcgcttc	900
atctccgacc	gccgcgtagt	ggggacaacg	gatggagcaa	cagcgccctg	ggggagcctg	960
agtacagccg	gcgctcggag	acgctccaag	gtcaccaagt	cggtgaccat	cgtagtcctt	1020

tccttcttct	tatgttggct	gccaaccaa	gcgtcacca	cctggagcat	cctcatcaag	1080
ttcaacgtag	tgcccttcag	tcaggagtac	tttcagtgcc	aagtgtacgc	gttcccagtc	1140
agcgtgtgcc	tggcacactc	caacagctgc	ctcaacccca	tcctctactg	cttagtgcg	1200
cgcgagttcc	gcaaggcgct	caagaacctg	ctgtggcgta	tagcatcgcc	ttcgctcacc	1260
agcatgcgcc	ccttcaccgc	caccaccaag	ccagaacctg	aagatcacgg	gctgcaggcc	1320
ctggcgccac	ttaatgctac	tgcagagcct	gacctgatct	actatccacc	cggtgtggtg	1380
gtctacacgc	gaggtcgcta	cgaccttctc	cctagcagct	ctgcctactg	a	1431

<210> 11  
 <211> 1410  
 <212> DNA  
 <213> Rat

<400> 11	
atgcaagtgg	cttctgcaac caccgcagcc cccatgagta aggcagctgc gggatgatgag 60
ctctccggat	tcttcggcct gatccagac ttgtggagg ttgccaacag gagcagcaat 120
gcgtcgctgc	agcttcagga cttgtggtgg gagctggggc tggagttgcc cgacggtgcg 180
gcgcctgggc	atccccggg cagcgggtgg gcagagagcg cggacacaga ggccagggtgta 240
cggatcctca	tcagcgccgt ttactgggtg gtttgtgccc tgggactggc tggcaacctg 300
ctggttctct	acctgatgaa gagcaaacag ggctggcgca aatcctccat taacctcttt 360
gtcactaacc	tggcgctgac tgactttcag tttgtgctca ctctgccctt ctgggcggtg 420
gagaacgcac	tagatttcaa gtggcccttt ggcaaggcca tgtgtaagat cgtatctatg 480
gtgacatcca	tgaacatgta tgccagcgctc ttctttctca ctgctatgag tgtggcgcg 540
taccactcgg	tggcctcagc tctcaagagc catcggaccc gcgggcatgg ccgtggcgac 600
tgctgcggcc	agagcttggg ggagagctgc tgtttctcag ccaagggtgct gtgtggattg 660
atctgggctt	ctgccgcgat agcttcgctg cccaatgtca ttttttctac caccatcaat 720
gtgttgggcg	aggagctgtg cctcatgcac tttccggaca agctcctggg ttgggaccgg 780
cagttctggc	tgggtttgta ccacctgcag aagggtgctgc tgggcttcct gctgccgctg 840
agcatcatca	gtttgtgtta cctgttgctc gtgcgcttca tctccgaccg ccgcgtagtg 900
gggacaacgg	atggagcaac agcgcttggg gggagcctga gtacagccgg cgctcggaga 960
cgctccaagg	tcaccaagtc ggtgaccatc gtagtccttt ctttcttctt atgttggtg 1020
cccaaccaag	cgctcaccac ctggagcatc ctcatcaagt tcaacgtagt gcccttcagt 1080
caggagtact	ttcagtgcc aagtgtacgcg ttcccagtc gcgtgtgcct ggcacactcc 1140
aacagctgcc	tcaaccccat cctctactgc ttagtgcgcc gcgagttccg caaggcgctc 1200
aagaacctgc	tgtggcgat agcatcgctc tcgctcacca gcatgcgccc cttcaccgcc 1260

accaccaagc cagaacctga agatcacggg ctgcaggccc tggcgccact taatgctact 1320  
gcagagcctg acctgatcta ctatccaccc ggtgtggtgg tctacagcgg aggtcgctac 1380  
gaccttctcc ctagcagctc tgcctactga 1410

<210> 12  
<211> 469  
<212> PRT  
<213> Homo sapiens

<400> 12

Met Gln Met Ala Asp Ala Ala Thr Ile Ala Thr Met Asn Lys Ala Ala  
1 5 10 15

Gly Gly Asp Lys Leu Ala Glu Leu Phe Ser Leu Val Pro Asp Leu Leu  
20 25 30

Glu Ala Ala Asn Thr Ser Gly Asn Ala Ser Leu Gln Leu Pro Asp Leu  
35 40 45

Trp Trp Glu Leu Gly Leu Gly Leu Pro Asp Gly Ala Pro Pro Gly His  
50 55 60

Pro Pro Gly Ser Gly Gly Ala Glu Ser Ala Asp Thr Glu Ala Arg Val  
65 70 75 80

Arg Ile Leu Ile Ser Val Val Tyr Trp Val Val Cys Ala Leu Gly Leu  
85 90 95

Ala Gly Asn Leu Leu Val Leu Tyr Leu Met Lys Ser Met Gln Gly Trp  
100 105 110

Arg Lys Ser Ser Ile Asn Leu Phe Val Thr Asn Leu Ala Leu Thr Asp  
115 120 125

Phe Gln Phe Val Leu Thr Leu Pro Phe Trp Ala Val Glu Asn Ala Leu  
130 135 140

Asp Phe Lys Trp Pro Phe Gly Lys Ala Met Cys Lys Ile Val Ser Met  
145 150 155 160

Val Thr Ser Met Asn Met Tyr Ala Ser Val Phe Phe Leu Thr Ala Met  
165 170 175

Ser Val Thr Arg Tyr His Ser Val Ala Ser Ala Leu Lys Ser His Arg  
180 185 190

Thr Arg Gly His Gly Arg Gly Asp Cys Cys Gly Arg Ser Leu Gly Asp  
195 200 205

Ser Cys Cys Phe Ser Ala Lys Ala Leu Cys Val Trp Ile Trp Ala Leu  
210 215 220

Ala Ala Leu Ala Ser Leu Pro Ser Ala Ile Phe Ser Thr Thr Val Lys  
225 230 235 240

Val Met Gly Glu Glu Leu Cys Leu Val Arg Phe Pro Asp Lys Leu Leu  
245 250 255

Gly Arg Asp Arg Gln Phe Trp Leu Gly Leu Tyr His Ser Gln Lys Val  
260 265 270

Leu Leu Gly Phe Val Leu Pro Leu Gly Ile Ile Ile Leu Cys Tyr Leu  
275 280 285

Leu Leu Val Arg Phe Ile Ala Asp Arg Arg Ala Ala Gly Thr Lys Gly  
290 295 300

Gly Ala Ala Val Ala Gly Gly Arg Pro Thr Gly Ala Ser Ala Arg Arg  
305 310 315 320

Leu Ser Lys Val Thr Lys Ser Val Thr Ile Val Val Leu Ser Phe Phe  
325 330 335

Leu Cys Trp Leu Pro Asn Gln Ala Leu Thr Thr Trp Ser Ile Leu Ile  
340 345 350

Lys Phe Asn Ala Val Pro Phe Ser Gln Glu Tyr Phe Leu Cys Gln Val  
355 360 365

Tyr Ala Phe Pro Val Ser Val Cys Leu Ala His Ser Asn Ser Cys Leu  
370 375 380

Asn Pro Val Leu Tyr Cys Leu Val Arg Arg Glu Phe Arg Lys Ala Leu  
385 390 395 400

Lys Ser Leu Leu Arg Arg Ile Ala Ser Pro Ser Ile Thr Ser Met Arg  
405 410 415

Pro Phe Thr Ala Thr Thr Lys Pro Glu His Glu Asp Gln Gly Leu Gln  
420 425 430

Ala Pro Ala Pro Pro His Ala Ala Ala Glu Pro Asp Leu Leu Tyr Tyr  
435 440 445

Pro Pro Gly Val Val Val Tyr Ser Gly Gly Arg Tyr Asp Leu Leu Pro  
450 455 460

Ser Ser Ser Ala Tyr  
465

<210> 13  
<211> 472  
<212> PRT  
<213> Mouse

<400> 13

Met Gln Val Ala Ser Ala Thr Pro Ala Ala Thr Val Arg Lys Ala Ala  
1 5 10 15

Ala Gly Asp Glu Leu Ser Glu Phe Phe Ala Leu Thr Pro Asp Leu Leu  
20 25 30

Glu Val Ala Asn Ala Ser Gly Asn Ala Ser Leu Gln Leu Gln Asp Leu  
35 40 45

Trp Trp Glu Leu Gly Leu Glu Leu Pro Asp Gly Ala Ala Pro Gly His  
50 55 60

Pro Pro Gly Gly Gly Gly Ala Glu Ser Thr Asp Thr Glu Ala Arg Val  
65 70 75 80

Arg Ile Leu Ile Ser Ala Val Tyr Trp Val Val Cys Ala Leu Gly Leu  
85 90 95

Ala Gly Asn Leu Leu Val Leu Tyr Leu Met Lys Ser Lys Gln Gly Trp  
100 105 110

Arg Lys Ser Ser Ile Asn Leu Phe Val Thr Asn Leu Ala Leu Thr Asp  
115 120 125

Phe Gln Phe Val Leu Thr Leu Pro Phe Trp Ala Val Glu Asn Ala Leu  
130 135 140

Asp Phe Lys Trp Pro Phe Gly Lys Ala Met Cys Lys Ile Val Ser Met  
145 150 155 160

Val Thr Ser Met Asn Met Tyr Ala Ser Val Phe Phe Leu Thr Ala Met  
165 170 175

Ser Val Ala Arg Tyr His Ser Val Ala Ser Ala Leu Lys Ser His Arg  
180 185 190

Thr Arg Gly Arg Gly Arg Gly Asp Cys Cys Gly Gln Ser Leu Arg Glu  
195 200 205



Ser Cys Cys Phe Ser Ala Lys Val Leu Cys Gly Leu Ile Trp Ala Ser  
210 215 220

Ala Ala Leu Ala Ser Leu Pro Asn Ala Ile Phe Ser Thr Thr Ile Arg  
225 230 235 240

Val Leu Gly Glu Glu Leu Cys Leu Met His Phe Pro Asp Lys Leu Leu  
245 250 255

Gly Trp Asp Arg Gln Phe Trp Leu Gly Leu Tyr His Leu Gln Lys Val  
260 265 270

Leu Leu Gly Phe Leu Leu Pro Leu Ser Ile Ile Ser Leu Cys Tyr Leu  
275 280 285

Leu Leu Val Arg Phe Ile Ser Asp Arg Arg Val Val Gly Thr Thr Asp  
290 295 300

Ala Val Gly Ala Ala Ala Ala Pro Gly Gly Gly Leu Ser Thr Ala Ser  
305 310 315 320

Ala Arg Arg Arg Ser Lys Val Thr Lys Ser Val Thr Ile Val Val Leu  
325 330 335

Ser Phe Phe Leu Cys Trp Leu Pro Asn Gln Ala Leu Thr Thr Trp Ser  
340 345 350

Ile Leu Ile Lys Phe Asn Ala Val Pro Phe Ser Gln Glu Tyr Phe Gln  
355 360 365

Cys Gln Val Tyr Ala Phe Pro Val Ser Val Cys Leu Ala His Ser Asn  
370 375 380

Ser Cys Leu Asn Pro Ile Leu Tyr Cys Leu Val Arg Arg Glu Phe Arg  
385 390 395 400

Lys Ala Leu Lys Asn Leu Leu Trp Arg Ile Ala Ser Pro Ser Leu Thr  
405 410 415

Asn Met Arg Pro Phe Thr Ala Thr Thr Lys Pro Glu Pro Glu Asp His  
420 425 430

Gly Leu Gln Ala Leu Ala Pro Leu Asn Ala Ala Ala Glu Pro Asp Leu  
435 440 445

Ile Tyr Tyr Pro Pro Gly Val Val Val Tyr Ser Gly Gly Arg Tyr Asp  
450 455 460

Leu Leu Pro Ser Ser Ser Ala Tyr  
465 470

<210> 14  
<211> 476  
<212> PRT  
<213> Rat

<400> 14

Met Pro Lys Ala His Leu Ser Met Gln Val Ala Ser Ala Thr Thr Ala  
1 5 10 15

Ala Pro Met Ser Lys Ala Ala Ala Gly Asp Glu Leu Ser Gly Phe Phe  
20 25 30

Gly Leu Ile Pro Asp Leu Leu Glu Val Ala Asn Arg Ser Ser Asn Ala  
35 40 45

Ser Leu Gln Leu Gln Asp Leu Trp Trp Glu Leu Gly Leu Glu Leu Pro  
50 55 60

Asp Gly Ala Ala Pro Gly His Pro Pro Gly Ser Gly Gly Ala Glu Ser  
65 70 75 80

Ala Asp Thr Glu Ala Arg Val Arg Ile Leu Ile Ser Ala Val Tyr Trp  
85 90 95

Val Val Cys Ala Leu Gly Leu Ala Gly Asn Leu Leu Val Leu Tyr Leu  
100 105 110

Met Lys Ser Lys Gln Gly Arg Arg Lys Ser Ser Ile Asn Leu Phe Val  
115 120 125

Thr Asn Leu Ala Leu Thr Asp Phe Gln Phe Val Leu Thr Leu Pro Phe  
130 135 140

Trp Ala Val Glu Asn Ala Leu Asp Phe Lys Trp Pro Phe Gly Lys Ala  
145 150 155 160

Met Cys Lys Ile Val Ser Met Val Thr Ser Met Asn Met Tyr Ala Ser  
165 170 175

Val Phe Phe Leu Thr Ala Met Ser Val Ala Arg Tyr His Ser Val Ala  
180 185 190

Ser Ala Leu Lys Ser His Arg Thr Arg Gly His Gly Arg Gly Asp Cys  
195 200 205

Cys Gly Gln Ser Leu Gly Glu Ser Cys Cys Phe Ser Ala Lys Val Leu  
 210 215 220  
 Cys Gly Leu Ile Trp Ala Ser Ala Ala Ile Ala Ser Leu Pro Asn Val  
 225 230 235 240  
 Ile Phe Ser Thr Thr Ile Asn Val Leu Gly Glu Glu Leu Cys Leu Met  
 245 250 255  
 His Phe Pro Asp Lys Leu Leu Gly Trp Asp Arg Gln Phe Trp Leu Gly  
 260 265 270  
 Leu Tyr His Leu Gln Lys Val Leu Leu Gly Phe Leu Leu Pro Leu Ser  
 275 280 285  
 Ile Ile Ser Leu Cys Tyr Leu Leu Leu Val Arg Phe Ile Ser Asp Arg  
 290 295 300  
 Arg Val Val Gly Thr Thr Asp Gly Ala Thr Ala Pro Gly Gly Ser Leu  
 305 310 315 320  
 Ser Thr Ala Gly Ala Arg Arg Arg Ser Lys Val Thr Lys Ser Val Thr  
 325 330 335  
 Ile Val Val Leu Ser Phe Phe Leu Cys Trp Leu Pro Asn Gln Ala Leu  
 340 345 350  
 Thr Thr Trp Ser Ile Leu Ile Lys Phe Asn Val Val Pro Phe Ser Gln  
 355 360 365  
 Glu Tyr Phe Gln Cys Gln Val Tyr Ala Phe Pro Val Ser Val Cys Leu  
 370 375 380  
 Ala His Ser Asn Ser Cys Leu Asn Pro Ile Leu Tyr Cys Leu Val Arg  
 385 390 395 400  
 Arg Glu Phe Arg Lys Ala Leu Lys Asn Leu Leu Trp Arg Ile Ala Ser  
 405 410 415  
 Pro Ser Leu Thr Ser Met Arg Pro Phe Thr Ala Thr Thr Lys Pro Glu  
 420 425 430  
 Pro Glu Asp His Gly Leu Gln Ala Leu Ala Pro Leu Asn Ala Thr Ala  
 435 440 445  
 Glu Pro Asp Leu Ile Tyr Tyr Pro Pro Gly Val Val Val Tyr Ser Gly  
 450 455 460

Gly Arg Tyr Asp Leu Leu Pro Ser Ser Ser Ala Tyr  
465 470 475

<210> 15  
<211> 469  
<212> PRT  
<213> Rat

<400> 15

Met Gln Val Ala Ser Ala Thr Thr Ala Ala Pro Met Ser Lys Ala Ala  
1 5 10 15

Ala Gly Asp Glu Leu Ser Gly Phe Phe Gly Leu Ile Pro Asp Leu Leu  
20 25 30

Glu Val Ala Asn Arg Ser Ser Asn Ala Ser Leu Gln Leu Gln Asp Leu  
35 40 45

Trp Trp Glu Leu Gly Leu Glu Leu Pro Asp Gly Ala Ala Pro Gly His  
50 55 60

Pro Pro Gly Ser Gly Gly Ala Glu Ser Ala Asp Thr Glu Ala Arg Val  
65 70 75 80

Arg Ile Leu Ile Ser Ala Val Tyr Trp Val Val Cys Ala Leu Gly Leu  
85 90 95

Ala Gly Asn Leu Leu Val Leu Tyr Leu Met Lys Ser Lys Gln Gly Trp  
100 105 110

Arg Lys Ser Ser Ile Asn Leu Phe Val Thr Asn Leu Ala Leu Thr Asp  
115 120 125

Phe Gln Phe Val Leu Thr Leu Pro Phe Trp Ala Val Glu Asn Ala Leu  
130 135 140

Asp Phe Lys Trp Pro Phe Gly Lys Ala Met Cys Lys Ile Val Ser Met  
145 150 155 160

Val Thr Ser Met Asn Met Tyr Ala Ser Val Phe Phe Leu Thr Ala Met  
165 170 175

Ser Val Ala Arg Tyr His Ser Val Ala Ser Ala Leu Lys Ser His Arg  
180 185 190

Thr Arg Gly His Gly Arg Gly Asp Cys Cys Gly Gln Ser Leu Gly Glu  
195 200 205

Ser Cys Cys Phe Ser Ala Lys Val Leu Cys Gly Leu Ile Trp Ala Ser  
Page 12

210                      215                      220  
 Ala Ala Ile Ala Ser Leu Pro Asn Val Ile Phe Ser Thr Thr Ile Asn  
 225                      230                      235                      240  
 Val Leu Gly Glu Glu Leu Cys Leu Met His Phe Pro Asp Lys Leu Leu  
                                  245                      250                      255  
 Gly Trp Asp Arg Gln Phe Trp Leu Gly Leu Tyr His Leu Gln Lys Val  
                                  260                      265                      270  
 Leu Leu Gly Phe Leu Leu Pro Leu Ser Ile Ile Ser Leu Cys Tyr Leu  
                                  275                      280                      285  
 Leu Leu Val Arg Phe Ile Ser Asp Arg Arg Val Val Gly Thr Thr Asp  
                                  290                      295                      300  
 Gly Ala Thr Ala Pro Gly Gly Ser Leu Ser Thr Ala Gly Ala Arg Arg  
 305                      310                      315                      320  
 Arg Ser Lys Val Thr Lys Ser Val Thr Ile Val Val Leu Ser Phe Phe  
                                  325                      330                      335  
 Leu Cys Trp Leu Pro Asn Gln Ala Leu Thr Thr Trp Ser Ile Leu Ile  
                                  340                      345                      350  
 Lys Phe Asn Val Val Pro Phe Ser Gln Glu Tyr Phe Gln Cys Gln Val  
                                  355                      360                      365  
 Tyr Ala Phe Pro Val Ser Val Cys Leu Ala His Ser Asn Ser Cys Leu  
                                  370                      375                      380  
 Asn Pro Ile Leu Tyr Cys Leu Val Arg Arg Glu Phe Arg Lys Ala Leu  
 385                      390                      395                      400  
 Lys Asn Leu Leu Trp Arg Ile Ala Ser Pro Ser Leu Thr Ser Met Arg  
                                  405                      410                      415  
 Pro Phe Thr Ala Thr Thr Lys Pro Glu Pro Glu Asp His Gly Leu Gln  
                                  420                      425                      430  
 Ala Leu Ala Pro Leu Asn Ala Thr Ala Glu Pro Asp Leu Ile Tyr Tyr  
                                  435                      440                      445  
 Pro Pro Gly Val Val Val Tyr Ser Gly Gly Arg Tyr Asp Leu Leu Pro  
                                  450                      455                      460  
 Ser Ser Ser Ala Tyr

465

<210> 16  
<211> 17  
<212> PRT  
<213> Porcine

<400> 16

Asp Val Leu Ala Gly Leu Ser Ser Asn Lys Trp Gly Ser Lys Ser Glu  
1 5 10 15

Ile

<210> 17  
<211> 19  
<212> PRT  
<213> Porcine

<400> 17

Arg Ala Ser Pro Tyr Gly Val Lys Leu Gly Arg Glu Phe Ile Arg Ala  
1 5 10 15

Val Ile Phe

<210> 18  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 18  
acgatcgtcg acgccaccat ggccaggtac atgctgctgc tgctc

45

<210> 19  
<211> 41  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 19  
acgataaagc ttctagcaaa ggctactgat ttcacttttg c

41

<210> 20  
<211> 52  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 20  
acgatagaat tcgatgacga cgataagcgg gcagcgcctt acggggtcag gc 52

<210> 21  
<211> 44  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 21  
actataggat ccctagcaaa ggctactgat ttcacttttg ctac 44

<210> 22  
<211> 102  
<212> DNA  
<213> Artificial

<220>  
<223> oligonucleotide

<400> 22  
ctgcaggccg ccatgctgac cgcagcgttg ctgagctgtg ccctgctgct ggcactgcct 60  
gccacgcgag gagactacaa ggacgacgat gacaaggaat tc 102

<210> 23  
<211> 40  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 23  
acgatactgc aggccgccat gctgaccgca gcgttgctga 40

<210> 24  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 24  
cagccaggac atctcgtcgg ccccgaagaa ccccaggggt tcctt 45

<210> 25  
<211> 46  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 25

ggttcttcgg ggccgacgag atgtcctggc tggcctttcc agcagc 46

<210> 26  
<211> 44  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 26  
actataggat ccctagcaaa ggctactgat ttcacttttg ctac 44

<210> 27  
<211> 44  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 27  
gactagaagc ttgccaccat ggagctgagg ccctggttgc tatg 44

<210> 28  
<211> 40  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 28  
gacgatagcg gccgcagtgg gctcatcaga gggcgctctg 40